

REMARKS/ARGUMENTS

Amendments in General

1. Claims 1, 2, 9, 10, and 13 have been amended to remove the open-ended brackets which were incorrectly placed therein and were objected to by the Examiner. Such changes add no new matter.
2. Claims 2, 3, 9, 10, 13, and 16 have been amended to remove the subject matter that was objected to by the Examiner namely that the presence of four elongated openings is not supported by the specification. Such changes add no new matter.
3. However, it is to be noted that Applicant disagrees with this characterization and believes that the combination of Figures 2 and 3, which each show three elongated openings made from radial gas holes 20, together with the description in paragraph 23 that “(i)t is to be understood that the gas holes on the surface of the cylinder 20 are disposed radially around the entire outer surface of the cylinder 12,” provides sufficient support for the claim limitation that more than four elongated openings are present in the invention. While Figures 2 and 3 only show one side of the cylinder, the combination of the written paragraph and the figures provide sufficient information to understand that all sides of the cylinder are substantially identical and therefore all of the openings that are disposed radially around the entire outer surface of the cylinder 12 sum to a number greater than three.
4. Claims 1 and 13 have been amended to include the limitation that the first elongated openings have a longitudinal dimension that is greater than the longitudinal dimension of any

other aperture positioned within the device. This amendment adds no new matter to the application and acceptance of this amendment is respectfully requested.

Claim Rejections - 35 USC §102

5. The Examiner has finally rejected the present application over a variety of references. However, none of these references contain all of the features of the present invention. Namely none of these references contain all of the features of the present claims as amended and therefore the rejection of these claims under 35 USC §102 is improper.

6. The present invention is a novel and non-obvious invention as compared to various forms of prior art. The prior art muzzle brakes, while decreasing the amount of recoil force felt by a shooter, provide an increase of noise and gas blast back upon a shooter. This occurs because, as the gas escapes through the openings that exist in the prior art muzzle brakes, the gases contact the body portions of the muzzle brake and are bounced back toward the shooter. This reflection of gasses back toward the shooter causes an increase in the amount of noise perceived by the shooter and the amount of fatigue that the shooter suffers. For this reason, many individuals simply refuse to use muzzle brakes.

7. As stated in each of the claims as previously amended, the present invention provides a significantly quieter and less fatiguing muzzle brake because the shape and design of the present invention directs the dispersing gasses away from the shooter, and does so in a manner that is significantly quieter than the other muzzle brakes found in the prior art. This is done by providing that the first openings positioned closest to the discharge end of the barrel, as

compared to any other opening, are longer than any other opening in the muzzle brake. When the projectile passes through the muzzle brake, the accompanying gasses are dissipated through these first elongated openings. The force of the gas itself through the barrel provides a forward force component to the mass of the gas. In the prior art embodiments, the length of the first opening, where the gas first escapes from the device, is generally shorter than the other dimensions of this first aperture. As a result, the strongest blast of gas out of the firing end of the device is reflected back off of the body of the muzzle brake and back toward the shooter. In the present invention, this initial dispersion of gasses is dispersed through the elongated openings and away from the shooter with reduced amounts of gas reflected off of the device as compared to other prior art muzzle brakes. This results in less noise being perceived by the shooter because less gas is reflected off of the muzzle brake and back towards the shooter. For example, the firing of a rifle with a typical muzzle brake results in the increase of noise perceived by a shooter of between 12 and 14 decibels, while a user of the present invention would perceive a decibel level of between 6 and 8 decibels because of the way in which noise producing gasses are released from the device. Drawings which demonstrate this feature are found in Figures 8 and 9 of the application as filed:

5. The present invention contains elongated first openings that have a longitudinal dimension that is greater than the lateral direction and are configured to direct gasses away from a shooter. Furthermore, these first openings are configured to be the longest openings in any of the devices. None of the references cited by the Examiner include all of these key features. Thus the Examiner's rejection of these claims under 35 U.S.C. §102 is improper.

6. The Examiner has rejected claims 1, 2, 3, and 13 under 35 USC §102(b) as being anticipated by US Pat. No 4,967,642 to Mihaita. The Examiner maintains that the Mihaita discloses a muzzle brake comprising a cylindrical body having a central bore, at least one opening, having a longitudinal dimension greater than a lateral dimension and a plurality of gas holes linearly disposed along a longitudinal axis of the body. The Examiner indicates that the holes are elongated because they are cut at a forty-five degree angle and thus create an elongated hole.

7. In the Mihaita device, the first openings (210) in the device that are closest to the discharge end of the firearm as compared to any other hole are not elongated openings that direct gasses away from a shooter as is described in the present invention. Rather these first openings or apertures (210) are generally round apertures connected at a forty-five degree angle as compared to the longitudinal axis of the recoil compensator and which are configured to direct the reflection of gasses back towards the shooter. Furthermore, the longest apertures in the muzzle brake (212) are positioned near the second end of the recoil compensating device and not nearest to the first as is shown in the present invention. See Fig. 1A.

8. This is not the structure of the present invention as set forth in claims 1, 2, 3, and 13. All of these claims teach that the first openings in the device are elongated along a longitudinal axis and that these openings are the longest openings within the cylinder as compared to any other device. Furthermore, the present structure is configured to direct the passage of gasses away from the shooter and not toward the shooter as occurs in the present invention.

9. Not only is the structure of the Mihaita device not the structure of the present invention, the effect and the configuration of the structure in this device is exactly the opposite of the structure and configuration of the present invention. Therefore the rejection of the present invention under 35 USC §102(b) over Mihaita is improper and Applicant respectfully requests that this rejection be withdrawn.

10. The Examiner rejected claim 1 under §102(b) as being anticipated by U.S. Patent No. D285,238 to Cellini. The Examiner maintains that the Cellini patent discloses a muzzle brake comprising a cylindrical body having a longitudinal dimension greater than a lateral dimension, and a plurality of gas holes linearly disposed along a longitudinal axis of the body.

11. This Cellini patent reference fails to disclose all of the features of the present invention. The Examiner has stated that in the Cellini patent the elongated openings that are positioned in the middle portion of the device are closer to the first end of the device as compared to the discharge opening that is located at the second end of the muzzle brake. While this is factually correct, this is not the limitation that the present invention describes. The present invention describes that the elongated opening is positioned nearest to the first end, which is defined as the end to which the muzzle brake attaches to a firearm, and that this elongated opening is closer to this opening than any other opening. In this invention, the apertures that are closest to the first muzzle connecting or right-hand end of the device are not elongated. The elongated apertures are positioned further along the length of the muzzle brake from this device. Thus, the present invention fails to include all of the features of the present invention and as a result this reference does not anticipate this reference.

12. The Examiner has rejected claim 1 as being anticipated by US Pat. No 491,614 to Leffel. The Leffel device does not teach all of the features of the present invention. Namely, the Leffel device does not teach that the first elongated openings that are positioned closest to a first end or gun attaching end of a device are the longest openings that are defined within a muzzle brake. Claim 1 and its dependent claims all include this feature. In as much as the Leffel patent fails to include this feature within its device, the Leffel device is not an anticipatory reference to this device.

13. The Examiner has rejected claims 1, 2, 3, and 13 under 35 USC §102(b) as being anticipated by Hillman, U.S. Patent No. 4,574,682. The Hillman reference does not teach the feature of the first elongated opening having a greater elongated dimension as compared to any other opening within the device. In the Hillman device, all of the openings have generally the same longitudinal dimension. Therefore, the present rejection under §102(b) is inappropriate.

14. The Examiner has rejected claims 1 and 2 under 35 USC §102 as being anticipated by Kleinguenther, U.S. Patent No. 5,305,677. This patent fails to disclose that the longest portion of the apertures extend in a longitudinal direction from the first end of the barrel toward the second end of the barrel as is described in the present claims. Therefore a rejection of the present invention under 35 USC §102(b) is inappropriate.

Claim Rejections - 35 USC §103

15. The Examiner has rejected claims 9, 10, and 16 under §103(a) as being unpatentable (obvious) over either Cellini or Mihaita in view of Kleinguenther.

16. The Examiner maintains that combining either the Cellini or Mihaita devices with the intersecting multiple radial holes shown in the Kleinguenther patent to create longitudinal slots would have been obvious and would produce the present invention. Applicant respectfully disagrees.

17. “To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on the applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).” MPEP § 706.02(j).

18. There is no suggestion to combine these references to arrive at the combination that describes the present invention. While the Cellini and Mihaita devices do have generally elongated openings, the location of these elongated openings is different from the location of the elongated openings described in the present invention. This difference is crucial to the success of the Applicant’s invention and makes Applicant’s present invention patentably distinct over these references.

19. The elongated openings in the Cellini and Mihaita devices are not located nearest to the

first end of the muzzle brake. The apertures that are closest to the first end of the devices described in each of these patents are not elongated in a longitudinal direction, but rather are generally circular in shape and appearance. Likewise, the Kleinguenther device does not describe first openings that are longitudinally elongated.

28. Furthermore, there is no indication in any of these devices that the longest openings in the devices should or must be positioned closest to the first end of the device as compared to any other element and that these openings be configured to direct gas away from a shooter. In as much as all of these features of the claims are not present even in a combination of these references, Applicant respectfully requests that the Examiner's rejection be withdrawn.

29. Claims 3, 9, 10, 13, and 16 have been rejected under 35 USC§103(a) as being unpatentable over Kleinguenther, U.S. Patent No. 5,305,677. The Examiner states that the orientation and position of the slots is of no consequence because the net effect of the release of the gas is the same.

30. Applicant respectfully disagrees.

30. The Examiner's line of reasoning is flawed and is contrary to the teachings of the prior art. Simply firing a gun without a muzzle brake results in the same net effect of gas release as firing a gun with a muzzle brake. However muzzle brakes function because they disperse the propelling gasses at various rates and in various directions. See Background section U.S. Pat. No. 5,305,677 col 1 lines 10-38.

31. The Kleinguenther device has openings that are laterally elongated rather than longitudinally elongated. This device teaches away from utilizing larger elongated holes to allow gasses to escape and instead utilizes a design that forwards gas to a nozzle portion that is intended to stabilize the bullet as it passes through the muzzle brake.

32. The Kleinguenther reference also teaches that smaller openings are more effective at providing gas diffusion with reduced noise than larger openings. See col. 1 lines 28-32.

33. The Kleinguenther device teaches away from the present combination. The present combination uses openings that have larger longitudinal dimensions so as effectuate a faster rate at which gas is dispersed. The Kleinguenther device allows for dispersion of gas at varied rates and intervals so as to allow the rate of gas dispersal to be metered so as to coincide with the rate of gas dispersion out of the end of the device.

37. Since the cited references teach against the combination of elements shown in the present invention, no reasonable expectation of success can exist. Therefore, the present invention cannot be merely an obvious modification of these cited references.

38. This combination of the cited references fails to disclose all of the limitations of the present invention. The present invention requires that the elongated openings are the openings closest to the first end of the muzzle brake as compared to any other aperture, and that these openings have a greater longitudinal dimension than any other opening in the device. This limitation is likewise not found in this or in any of the combination of

references.

39. Applicant also respectfully refers the Examiner to the Declaration of the Applicant, which further supports the claims for patentability set forth in this amendment and response.

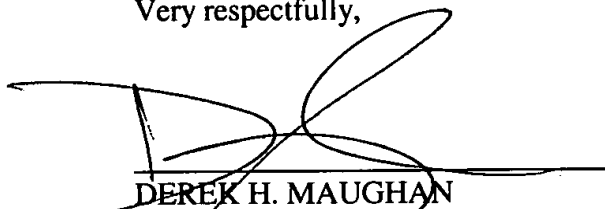
Conclusion

For the aforementioned reasons, Applicant hereby respectfully maintains that the present invention is not anticipated by or an obvious modification of the prior art and hereby respectfully requests that the Examiner remove his objections and allow this application as amended to proceed toward allowance.

In the event that the Examiner is not convinced of the presence of any patentable subject matter within this application, Applicant respectfully requests an interview with said Examiner to discuss same. The Examiner is invited to telephone the undersigned at the number given below.

DATED this 1st day of October 2003.

Very respectfully,


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CERTIFICATE OF MAILING

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